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Hiding in the Crowd: Can Mortality Salience Promote Affiliation With Others Who Oppose One's Worldviews?

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The present research highlights affiliation defenses in the psychological confrontation with death. In 3 experiments, it was found that mortality salience led to increased affiliation strivings, as indicated by a greater preference for sitting within a group as opposed to sitting alone. Mortality salience actually led to increased affiliation with a worldview-threatening group (Experiments 1–2), even when affiliation with the group forced participants to attack their own worldviews (Experiment 3). Taken together, the findings support a distinct role of affiliation defenses against existential concerns. Moreover, affiliation defenses seem powerful enough to override worldview validation defenses, even when the worldviews in question are personally relevant and highly accessible.

At the beginning of World War II, all Dutch university professors were faced with a terrifying decision (Moore, 1997). The Nazi occupiers of the Netherlands had decreed that all Dutch public servants must provide a so-called Aryan attestation, a written declaration of their affiliation with the Aryan race. By effectively asking Jewish civil servants to identify themselves, this declaration facilitated the exclusion of the Jews from education, public office, and the economy. Even though the Netherlands enjoyed a long-standing tradition of tolerance toward ethnic groups (Schama, 1997) and most Dutch academics were condemning of anti-Semitism, the Aryan attestation inspired only a few limited protests. Indeed, nearly all the teachers and academics did eventually sign the declarations. Historians nowadays agree that the lack of Dutch resistance to this policy was one of the key factors in the efficiency of the Nazi persecution of the Jews in the Netherlands, which culminated in the extermination of 102,000 out of a total of 142,000 Dutch Jews (Moore, 1997).

This dark and disturbing episode in the history of the Netherlands gives rise to some profound questions regarding human nature. Why do so many people seem willing to forsake their personal convictions when their own existence is threatened? One possibility is that most people are moral hypocrites (Batson, Kobrynowicz, Dinnerstein, Kampf, & Wilson, 1997) who pay no more than lip service to their ideological beliefs. As soon as their own life is on the line, people might begin to weigh their options extra carefully and logically decide that their beliefs are not really worth dying for. Although we do not deny that rational thinking may be one important form of dealing with existential concerns (see Pyszczynski, Greenberg, & Solomon, 1999), the present research deals with a decidedly more irrational—but, we believe, no less common—response to the psychological encounter with death. Specifically, we suggest that people's concerns with their own vulnerability and mortality may arouse a deeply rooted, largely unconscious desire to avoid being isolated from others. As a result, the psychological confrontation with death may lead a person to side with the nearest social group—much like the Dutch professors did during World War II—even when this group advocates values that are contrary to that person's ideological beliefs.

In the remainder of this article, we further examine the influence of existential concerns on affiliation with groups that either uphold or oppose one's ideological beliefs. We begin by discussing terror management theory (TMT; e.g., Greenberg, Solomon, & Pyszczynski, 1997), an influential theoretical perspective that argues that people's concerns with death may exert a powerful effect on their ideological allegiances and interpersonal affiliations. However, because TMT has considered ideological validation as primary to affiliation needs, the perspective is hard pressed to explain why people might choose to affiliate with a group that contradicts their ideology. Accordingly, to deepen our understanding of this issue, we turn to recent research on interpersonal affiliation and attachment processes, which has argued for a distinct anxiety-buffering value of affiliation (e.g., Mikulincer & Florian, 2000; Taylor et al., 2000). In previous discussions, terror management motives and affiliation needs have been put forward as mutually exclusive accounts of social motivation (e.g., Greenberg, Pyszczynski, & Solomon, 1990; Leary & Baumeister, 2000; Muraven & Baumeister, 1997). However, we suggest that it is possible for both theo-

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retical perspectives to be valid, to the extent that terror management needs may fuel the drive to affiliate with others (see Mikulincer & Florian, in press, for a broad overview). After discussing these ideas, we present three experiments that were designed to test our theoretical analysis.

Terror Management Function of Cultural Worldviews

TMT has provided a groundbreaking analysis of how people's need to manage the fear of death becomes translated into social behavior (Solomon, Greenberg, & Pyszczynski, 1991; Greenberg et al., 1997; Pyszczynski et al., 1999). On the basis of the writings of existential thinkers such as Kierkegaard, Rank, and Becker, TMT argues that death anxiety arises from the juxtaposition of an instinctual drive for self-preservation and the advanced intellectual ability to reflect on one's vulnerabilities and the inevitability of death. As such, death anxiety is seen as an inescapable aspect of the human condition, a form of anxiety that can only be controlled through a variety of social–symbolic defenses. Specifically, TMT posits that death anxiety is managed through a dual-component cultural anxiety buffer consisting of (a) a system of socially shared values or cultural worldviews, which imbue life with structure, meaning, and a promise to attain either literally or symbolic immortality for those who live up to the prescribed cultural standards and values, and (b) self-esteem, which is acquired by the belief to suffice the standards and values that are prescribed by one's cultural worldviews (Greenberg et al., 1997; Pyszczynski et al., 1999). We restrict our discussion to the worldview component of TMT, because this aspect of the theory is most relevant in the present context (for a more complete discussion of TMT, see Greenberg et al., 1997).

According to TMT, a cultural worldview is "a shared conception of reality that imbues life with meaning, order, and permanence and the promise of safety and death transcendence to those who meet the prescribed standards of value" (Greenberg et al., 1997, p. 71). Thus, the anxiety-buffering function of cultural worldviews operates at the level of socially shared symbols: Cultural worldviews offer the hope of achieving symbolic immortality, which then serves to control the terror that is aroused by the symbolic (i.e., psychological) confrontation with death. This presumed terror management function of cultural worldviews has been empirically tested in a systematic program of research. Most of this research has used the so-called *mortality salience paradigm*, in which mortality salience is manipulated (usually through two open-ended questions about death or a neutral topic), after which participants' defense of their cultural worldviews is assessed. The rationale behind this research is that if cultural worldviews function as a psychological shield against death concerns, evoking these concerns should increase the need to defend those worldviews. In line with TMT, research using the mortality salience paradigm has found that worldview defense increases under heightened mortality salience. For instance, mortality salience has been found to promote exaggerated consensus estimates for personally held opinions (Pyszczynski et al., 1996; Simon, Greenberg, Arndt, et al., 1997), reliance on cultural stereotypes (Schimel et al., 1999), and reluctance to desecrate culturally cherished icons (Greenberg, Simon, Porteus, Pyszczynski, & Solomon, 1995).

It is notable that most of the research that has been guided by TMT has operationalized worldview defense rather indirectly, by examining people's evaluations of others who either uphold or attack their cultural worldviews. From a terror management perspective, relationships with other people are primarily valued because they furnish a means of validating one's worldviews. In line with this, a number of experiments have shown that reminding people of their own mortality leads to more positive evaluations of others who praise or share their cultural worldviews (e.g., Greenberg, Pyszczynski, Solomon, et al., 1990; see Greenberg et al., 1997). Conversely, TMT predicts that people who fail to provide validation of one's worldviews will be much less valued or even derogated. Consistent with this, a number of experiments have shown that mortality salience leads to harsher judgments against individuals who violate people's moral principles or who attack their cultural worldviews (e.g., Arndt & Greenberg, 1999; Florian & Mikulincer, 1997; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Moreover, a recent set of studies has extended these findings to actual behavior by showing that mortality salience can promote aggression toward others who have threatened one's worldviews (H. McGregor et al., 1998).

Taken together, TMT research has yielded evidence that interpersonal evaluations are a direct function of the extent to which others serve as appropriate vehicles for worldview validation. As such, this line of research seems to leave no room for a separate anxiety-reducing role of interpersonal affiliation. After all, if affiliation in itself was sufficient to combat death anxiety, one might expect that attitudes toward others would remain at least somewhat positive even when these others were perceived as threatening to one's cultural worldviews. However, it is important to note that prior TMT research was not explicitly aimed at pitting the anxiety-buffering role of affiliation against that of worldview validation. As a result, many of the obtained findings might still allow for an anxiety-reducing role of interpersonal affiliation. For instance, in the majority of this research, the targets who attacked participants' worldviews were out-group members (e.g., Arndt, Greenberg, Solomon, & Pyszczynski, 1997; Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994; Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992; Simon, Greenberg, Harmon-Jones, et al., 1997). Other evidence for ideological distancing under heightened mortality salience has been obtained in the context of distal, vaguely defined groups (e.g., the general population; Simon, Greenberg, Arndt, et al., 1997). Because both out-groups and distal groups are unlikely to be regarded as potential relationship partners, distancing oneself from the members of such groups is less likely to invoke feelings of social isolation (Baumeister & Leary, 1995). Consequently, finding that mortality salience promotes distancing from out-group members or distal groups does not rule out the possibility that affiliation with in-group members or members of proximal groups may assist in coping with existential threat.

Terror Management Function of Affiliation

In recent years, a number of researchers have begun to pay more explicit attention to the potential terror management functions of interpersonal affiliation. It is notable that some of this work has evolved directly from TMT research. For instance, Harmon-Jones, Greenberg, Solomon, and Simon (1996; see Castano, Yzerbyt, Paladino, & Sacchi, 2002, for a conceptual replication) explored the influence of mortality salience in a minimal group setting. In

keeping with the classic minimal group paradigm (Tajfel, Billig, Bundy, & Flament, 1971), participants were assigned to ad hoc, artificial groups that were formed on the basis of a criterion that was clearly arbitrary (i.e., preference for a certain type of painting). After this, participants were asked to ascribe positive and negative traits to the in-group and out-group. The results showed that mortality salience led participants to be more biased toward their own minimal group. Given that the basis for group membership was deliberately designed to be arbitrary in this context, it seems hard to argue that belonging to such a group constituted an important aspect of participants' cultural worldviews (though see Dechesne, Greenberg, Arndt, & Schimel, 2000; Dechesne, Janssen, van Knippenberg, 2000; Harmon-Jones et al., 1996, for an alternative interpretation). In a related vein, Arndt, Greenberg, Solomon, Pyszczynski, and Schimel (1999) found that mortality-salient participants who had engaged in a creativity task expressed higher levels of social projection, an index of perceived social connectedness. On the basis of these findings, Arndt et al. (1999) suggested that "maintaining a sense of social connection serves the vital function of protecting individuals from concerns associated with mortality" (p. 21). As such, recent TMT research has begun to uncover some initial evidence for a terror management function of affiliation.

Another relevant line of research has focused on the role of attachment style in coping with existential concerns. One early study showed that chronic attachment style is an important moderator of the personal fear of death, with securely attached individuals displaying lower fear of death than do insecurely attached individuals (Mikulincer, Florian, & Tolmacz, 1990). Following up on this work, Florian, Mikulincer and associates (Florian & Mikulincer, 1998; Florian, Mikulincer, & Hirschberger, 2001; Mikulincer & Florian, 2000; Mikulincer & Florian, in press; Taubman Ben-Ari, Findler, & Mikulincer, 2002) have demonstrated that chronic attachment style moderates symbolic terror management defenses. For instance, Florian and Mikulincer (1998) found that securely attached individuals reported a higher sense of continuity and lastingness, as assessed through the concept of symbolic immortality (Lifton, 1983). In another series of studies, only insecurely attached individuals were found to respond to mortality salience by increased worldview defense (Mikulincer & Florian, 2000). By contrast, securely attached individuals were found to respond to mortality salience by increasing their desire for intimacy. Finally, Taubman Ben-Ari et al. (2002) reported that mortality salience led to more willingness to initiate social interactions, especially among securely attached individuals.

On the basis of these accumulating findings, Florian, Mikulincer and associates (see Mikulincer & Florian, in press, for a broad overview) have recently proposed that interpersonal affiliation may form an anxiety buffer that is functionally distinct from worldview defense. According to this argument, the condition of being affiliated with others creates a "haven of safety" (Mikulincer, Birnbaum, Woddis, & Nachmias, 2000, p. 509) in which people can feel secure, even in times of severe distress (see also Bowlby, 1969, 1973). It is important to note that affiliation is assumed to be mediated by different psychological mechanisms than is worldview defense. Whereas worldview defense is presumably mediated by cultural–symbolic processes, the buffering function of affiliation may be mediated to a considerable degree by automatic, subcognitive, biologically based mechanisms. From an evolutionary perspective, affiliation confers many important advantages on the individual, such as improved ability to gather food, increased likelihood of mating, and greater protection against threats in the environment (Baumeister & Leary, 1995; Buss, 1991; Sedikides & Skowronski, 1997). Given the important adaptive benefits associated with affiliation, it seems plausible that some powerful psychological mechanisms have evolved to ensure that individuals maximize the association between themselves and their social group and minimize the danger of becoming isolated or expelled from the group (Baumeister & Leary, 1995; Mikulincer et al., 2000; Taylor et al., 2000). The anxiety-reducing function of affiliation might represent one of these mechanisms by leading individuals to seek out the company of others under threatening circumstances.

Recent psychobiological work seems to fit with a direct, subcognitive, anxiety-reducing impact of affiliation. Along these lines, animal research has found that affiliation behaviors in mammals result in notable changes in neuroendocrine responding. For instance, one study of squirrel monkeys showed that increased cortisol levels after mother–infant separation became reduced when mother and infant were reunited (Coe, Mendoza, Smotherman, & Levine, 1978). Other studies have found that infant rats that grow up with highly nurturing mothers show better regulation of somatic growth and neural development (Francis, Diorio, Liu, & Meaney, 1999). Analogous findings have been obtained in humans, for whom important hormonal and neurophysiological substrates of caregiving and attachment have been identified (Carter, Lederhendler, & Kirkpatrick, 1997; Reis, Collins, & Berscheid, 2000; Siegel, 1999; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). This line of research indicates that the mere presence of another individual may have direct emotional and neuroendocrinal buffering effects that operate independently of cognitive appraisal (House, Landis, & Umberson, 1988). For instance, securely attached individuals display lower levels of stress hormones than do insecurely attached individuals in challenging circumstances (Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996). In a related vein, recent neuroendocrine evidence has implicated an oxytocin-based system as a biobehavioral mechanism that underlies the tend-and-befriend pattern in response to stress (especially among women, see Taylor et al., 2000). Taken together, these lines of research are consistent with the operation of a set of biologically based, subcognitive mediators in the distress-regulating influence of affiliation. The subcognitive mediation of affiliation may be contrasted with worldview validation defenses, which are presumably mediated by higher brain functions that can support cognitive–symbolic processes (Pyszczynski et al., 1999). Therefore, converging evidence points to an anxiety-buffering role of affiliation that is functionally distinct from the cognitive–symbolic worldview defense mechanisms that have been explored by TMT researchers.

The Present Research and Hypotheses

In the preceding paragraphs, worldview validation and affiliation were proposed as two rather different ways people may protect themselves against existential threat. We presume that worldview validation operates at the level of socially shared symbols and controls death anxiety by offering the promise of symbolic immortality and death transcendence. By contrast, the

anxiety-buffering function of affiliation may operate predominantly on a subsymbolic level, through affective–behavioral mechanisms that unfold in close interaction with automatic neurophysiological processes. Although worldview validation and affiliation thus appear to be distinct terror management defenses, very little work has explicitly examined both kinds of defenses simultaneously (but see Mikulincer & Florian, 2000, for a recent individual-differences approach to this topic). Moreover, we are not aware of any research that has directly examined the relative strength of these defenses—for instance, by pitting them against each other within a single experimental design. The present research was conducted to address these issues.

In the following series of experiments, we use the mortality salience paradigm to examine the influence of existential concerns on affiliation behavior. In each experiment, we manipulated mortality salience and subsequently examined participants' tendency to affiliate with a proximal social group. In Experiments 1 and 2, the beliefs that were espoused by this group were experimentally varied, to be either in line or in conflict with participants' cultural worldviews. For the in-group that supported participants' worldviews, both TMT and affiliation theory predict that mortality salience leads to enhanced affiliation with the group. After all, affiliating with a worldview-validating in-group presumably serves to fulfill both participants' needs for worldview validation and their affiliation needs. By contrast, worldview validation and affiliation needs are in conflict when the in-group propagates beliefs or values that are contrary to participants' cultural worldviews. In Experiment 3, we presented participants even more directly with this conflict by explicitly asking them to choose between sitting alone and defending their own worldviews or sitting in the group and attacking their own worldviews.

On the basis of prior TMT research, one might expect the need for worldview validation to prevail and might thus predict that mortality salience should lead to decreased affiliation in situations in which affiliation represents a threat to worldview validation. However, as noted before, this line of research has primarily examined reactions toward out-group members or distal groups and may thus have allowed little room for the emergence of affiliation defenses. From the perspective of affiliation theory, affiliation defenses are most likely to become activated when people are interacting with concrete members of the in-group. Hence, given that the present research was conducted in an in-group setting, we anticipated that affiliation defenses would be more influential in the present context than in previous TMT research. Accordingly, mortality salience might enhance participants' tendency to affiliate with their own social group, even when affiliating with the group was threatening to participants' cultural worldviews.

Experiment 1

Experiment 1 examines affiliation defenses in a context in which the nearest social group consisted of a concrete, rather accidental collection of individuals. Specifically, participants were first reminded of death and were then offered an opportunity to affiliate with a group of research participants with whom they would supposedly engage in a group discussion. Because these other participants did not form a very meaningful social category, it seemed unlikely that affiliation with such a haphazard collection of individuals would provide a strong boost to participants' cultural worldviews. By contrast, even a social environment completely devoid of cultural symbolism might still be suitable for the operation of affiliation defenses, given that affiliation defenses are presumably mediated by subsymbolic mechanisms (Baumeister & Leary, 1995; Kuhl, 2001; Taubman Ben-Ari et al., 2002). Accordingly, we assessed our participants' affiliation defenses by adapting the so-called seating paradigm, a classic methodology within the social–psychological literature (e.g., Macrae, Bodenhausen, Milne, & Jetten, 1994; Pleban & Tesser, 1981; Schachter, 1959; Tice, 1992). By and large, this literature indicates that individuals tend to maintain a closer seating distance from others with whom they would like to affiliate. As such, the seating paradigm provides us with a subtle, well-validated behavioral measure of affiliation. More specifically, we arranged for a room in which participants could either sit down alone (i.e., on a single chair) or among the other participants (i.e., on one of three chairs that were arranged in a cluster), and we surreptitiously observed where the participants chose to sit. Assuming that mortality salience would arouse participants' affiliation defenses, we could expect to find a more pronounced preference for sitting down in the group over sitting down alone under heightened mortality salience.

Experiment 1's main theoretical focus was the interplay between affiliation and worldview validation defenses. We created a conflict between the two kinds of defenses by manipulating whether participants' fellow group members supported versus attacked their cultural worldviews. Specifically, participants were told either that the personality dispositions of their group discussants were very tolerant or that the discussants' dispositions were not very tolerant at all. Because tolerance is one of the most revered values in the culture of the Netherlands (e.g., Schama, 1997), we expected that this manipulation would significantly alter participants' perceptions of the degree to which their fellow discussants supported their cultural worldviews. Accordingly, from a TMT perspective, the effects of mortality salience on affiliation behavior should be moderated by the ideological stance that was taken by participants' fellow group members: Mortality salience should promote affiliation when group members were described as having tolerant worldviews but not when group members were described as having intolerant worldviews. On the other hand, an affiliation perspective might predict only a main effect of mortality salience on affiliation behavior, given that the entire social interaction took place within an in-group context.

After participants were seated, we collected some conventional paper-and-pencil measures of worldview defense. Specifically, we provided the participants with two essays, one that criticized, and another that praised Dutch cultural values. Worldview defense was operationalized as a pro-Dutch bias in participants' evaluations of the authors of the essays. We chose to focus on author evaluations because past research suggests that this measure is a particularly sensitive measure of worldview defense (Simon, Greenberg, Harmon Jones, et al., 1997). In a rather exploratory vein, our analyses of this worldview defense measure also included participants' seating position (i.e., alone or in the group). Theoretically, worldview defense might be especially pronounced among participants who chose to sit alone, as these participants' behavior would seem to imply that their reliance on affiliation defenses was weaker (see Mikulincer & Florian, 2000). Alternatively, mortality salience might evoke such a powerful need for worldview validation that

participants' affiliation status (i.e., their seating position) would not moderate the emergence of worldview validation defenses.

Method

Participants and design. Seventy-nine undergraduate students from the University of Nijmegen (53 women and 26 men,[1] average age = 22) were randomly assigned to a 2 (mortality salience: high vs. low) × 2 (tolerance of the in-group: high vs. low) between-subjects factorial design. Participants received Dfl. 5 (about $2) for their participation.

Procedure and materials. On arriving at the laboratory, participants were welcomed and escorted to small cubicles, each containing an Apple Macintosh computer. The experimenter (who was unaware of the experimental conditions) explained that a short group discussion was to be part of the current investigation and pointed out the room where this discussion was to take place. All the remaining instructions were administered through the computer screen. Participants were first informed that they would fill out some personality questionnaires during the first part of the investigation. On the basis of these questionnaires, the computer calculated which scores were applicable to the participants themselves and the other participants who were to take part in the group discussion. It was explained that during the second part of the investigation, participants would read and give their opinions of two essays, followed by a group discussion about the essays. In reality, this group discussion did not take place; indeed, the experiment was run for each participant individually. After the most important measures were collected, participants were informed that the group discussion was cancelled.

The next part of the experiment was described as a study of personality and consisted of a few filler questionnaires that were followed by the mortality salience or control manipulation. This manipulation was closely patterned after previous TMT research (e.g., Greenberg, Pyszczynski, Solomon, et al., 1990; Rosenblatt et al., 1989). Specifically, participants in the mortality salience condition were asked to respond to the following two open-ended questions: (a) "Describe the emotions you feel while you are thinking about your own death," and (b) "Describe what you think will happen to you when you physically die." Control participants responded to two parallel questions in which the words *own death* were substituted by the words *watching television*. Immediately following the mortality salience treatment, participants rated their current feelings on the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Both subscales of PANAS were scored on 5-point scales (1 = *not at all*, 5 = *very much*).

Next, participants were informed that both their own and the other discussion group members' personality scores had become available. Participants were told that it was important for them to remember these scores in light of the upcoming group discussion. The personality scores then appeared on the computer screen. Participants in the tolerant group condition read, "Zero out of four participants had a low score on the tolerance scale." Participants in the intolerant group condition read, "Three out of four participants had a low score on the tolerance scale." Note that the intolerant feedback still allowed room for the participants to consider themselves as having a tolerant personality. After receiving the feedback, participants were instructed to take with them a closed envelope placed next to the computer and walk to the adjoining discussion room. The experimental sessions were scheduled so that each participant did not meet other participants in the discussion room. The discussion room was furnished with a rectangular table and five chairs (see Figure 1). On the far end of the table, there stood one big-armed chair (presumably, this chair would be occupied by the group interviewer). On one long side of the table, three chairs were placed next to each other; on the other long side of the table, there stood only one chair. As soon as participants had taken their seats, the experimenter unobtrusively recorded participants' seating position (1 = the single chair, 2 = one of the three clustered chairs).

While they were waiting for the other discussants, participants were asked to complete a packet of questionnaires that was in the envelope they had brought with them. These questionnaires consisted of a paper-and-pencil measure of worldview defense that was modeled after Greenberg et al. (1992). Specifically, participants read two essays, which had been supposedly written by foreign students staying in the Netherlands. One of the essays delivered criticism, whereas the other essay delivered praise to Dutch culture. The anti-Dutch essay criticized Dutch tolerance for drugs, sex, and violence and the Dutch authorities' soft attitudes toward ethnic minorities. The essay concluded by stating, "I am glad that I will leave this country again because I don't think that it's possible for anyone to become happy around here." The pro-Dutch essay was similar in length but conveyed a highly favorable attitude toward living in the Netherlands. Although the latter essay granted that—like any other country in the world—the Netherlands has a few negative sides, it lavishly praised the freedom, education, and welfare system that characterize the Netherlands. The essay concluded, "We should be proud of the fact that people in The Netherlands live in a very democratic and tolerant country."

Each essay was followed by two questionnaires that assessed participants' evaluations of the authors of the essays. The first questionnaire was modeled after the Interpersonal Judgement Scale (IJS; Byrne, 1971; see

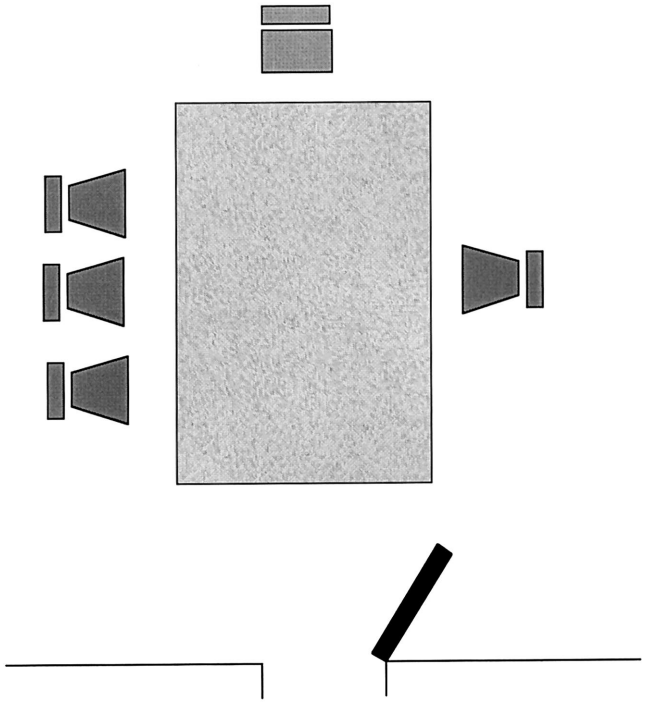

Figure 1. Schematic representation of the discussion room (Experiments 1 and 2). The chairs on which the participants could sit down were placed either to the left or to the right of the table (the rectangle in the figure). The placing of the clustered chairs and the single chairs was counterbalanced across conditions. The interviewer's chair was placed at the far end of the table.

[1] Repeating all the analyses in the present research with gender as a covariate did not alter any of the results. This may be due to the small number of male participants or to the rather robust affiliation effects after mortality salience that occurred for both male and female participants. Thus, although past research has suggested that gender may moderate affiliation defenses concerns (Arndt, Greenberg, & Cook, 2002; Taylor et al., 2000), the potentially moderating role of gender was not confirmed in the present research.

Greenberg, Pyszczynski, Solomon, et al., 1990) and asked participants to provide general evaluations of each author. Representative items are "To what extent do you think this person is prejudiced?" and "Would you like to meet this person?" The second questionnaire requested participants to rate the extent to which a series of traits applied to the author of each essay. The items of the second questionnaire were translated from Greenberg, Pyszczynski, Solomon, et al. (1990) and consisted of 15 positive traits and 15 negative traits presented in a random order. All the items were rated on a 9-point scale (1 = *not at all*, to 9 = *very much*). As soon as participants had completed the worldview defense measure, the experimenter entered the discussion room and informed them that the group discussion had been cancelled. Finally, participants were probed for suspicion, debriefed, paid, and dismissed.

Results

Manipulation checks. Almost all of the participants (96.2%) were able to recall the personality feedback regarding the tolerance of the discussion group. The 3 participants (3.8%) who had difficulty remembering the personality feedback were excluded from the analyses reported below. Four additional participants (5.1%) accidentally ran into each other when they went into the discussion room. These participants were also excluded from the analyses.[2]

Self-reported affect. A 2 (mortality salience: high vs. low) × 2 (group tolerance: high vs. low) multivariate analysis of variance (MANOVA) was conducted on the subscales of the PANAS. No reliable effects emerged.

Seating position. Participants' seating positions were subjected to a 2 (mortality salience: high vs. low) × 2 (group tolerance: high vs. low) × 2 (seating position: single chair vs. clustered chair) logistic regression analysis. This analysis revealed a significant Seating Position × Mortality Salience interaction, $\chi^2(1, N = 72) = 10.76$, $p < .005$. As shown in Table 1, a large majority of the participants (80.0%, $n = 28$) in the high mortality salience condition chose to sit in one of the clustered chairs. In contrast, less than half of the participants (46.0%, $n = 17$) in the low mortality salience condition preferred to sit in a clustered chair. No effects were found for group tolerance or for the interaction between group tolerance and mortality salience (both ps $> .2$).

Worldview defense. We only report the results for the IJS, because these were highly similar to the results obtained for the trait rating measure. A component factor analysis showed that the five items of the IJS loaded .60 or higher on a single factor. After recoding reverse-scored items, we summed and averaged the items. We then constructed a composite measure by subtracting participants' mean evaluations of the anti-Dutch author from their mean evaluations of the pro-Dutch author, such that higher means indicated a stronger pro-Dutch bias.

Table 1
Seating Preference as a Function of Mortality Salience (Experiment 1)

	Preferred seat			
	Single chair		Clustered chair	
Mortality salience	*n*	%	*n*	%
Low	20	54	17	46
High	7	20	28	80

Note. $N = 72$.

Because we anticipated that participants' seating position might have influenced their tendency to engage in worldview defense, we included seating position in the analysis as an independent variable. It should be noted that seating position was not a manipulated but a measured variable, so that any effects involving seating position should be interpreted with great caution. We proceeded by analyzing the worldview defense measure in a 2 (mortality salience: high vs. low) × 2 (group tolerance: high vs. low) × 2 (seating position: single chair vs. clustered chair) between-subjects analysis of variance (ANOVA). This analysis revealed a significant Mortality Salience × Seating Position interaction effect, $F(1, 64) = 5.25$, $p = .025$ ($d = 0.76$). As can be seen in Table 2, the classic worldview defense pattern of greater pro-Dutch bias under high versus low mortality salience was obtained among the group that had chosen to sit in the single chair ($M = 2.00$, $SD = 1.85$ vs. $M = 0.86$, $SD = 1.46$). By contrast, the clustered chair group showed a trend in the opposite direction, with less pro-Dutch bias occurring under high mortality salience than under low mortality salience ($M = 1.10$, $SD = 1.92$ vs. $M = 2.22$, $SD = 1.71$). Thus, although separate analyses revealed no significant effects, there was some indication that the emergence of ideological defenses was systematically related to participants' seating position.

Discussion

Consistent with recent reports in the literature (Arndt et al., 1999; Harmon-Jones et al., 1996; Mikulincer & Florian, 2000), Experiment 1 finds evidence for a terror management function of in-group affiliation. Specifically, the results show that mortality salience led to increased affiliation strivings, as indicated by a greater preference to sit in the group as opposed to sitting alone. Moreover, this form of affiliation defense was not qualified by whether the group members supported participants' cultural worldviews.

Experiment 1 yields suggestive evidence that at least some participants engaged in worldview defense. That is, the essay measure of worldview defense reveals that mortality salience led to increased worldview defense among participants who had chosen to sit alone but not among participants who had chosen to sit down in the group. Because this finding is correlational, its interpretation is somewhat ambiguous. One possibility is that affiliation and worldview validation defenses can psychologically compensate for each other (see Koole, Smeets, Van Knippenberg, & Dijksterhuis, 1999; Tesser, 2001). This notion is compatible with recent research by Mikulincer and Florian (2000), who found that worldview validation defenses are less prevalent among securely attached individuals. It could be, then, that affiliation defenses possess substitution value for worldview validation defenses, such that participants who had engaged in one kind of defense no longer needed to engage in the other kind of defense.

However, another possibility is that our seating position measure was confounded with personal importance of tolerance. Spe-

[2] In all three experiments reported in this article, the pattern of findings remained essentially unchanged when participants who were excluded on the basis of procedural errors or misunderstandings were included in the analyses.

Table 2
Pro-Netherlands Bias as a Function of Mortality Salience and Seating Position (Experiment 1)

	Seating position	
Mortality salience	Single chair	Clustered chair
Low		
M	0.86	2.22
SD	1.46	1.71
n	20	17
High		
M	2.00	1.10
SD	1.85	1.92
n	7	28

Note. $N = 72$.

cifically, participants who had chosen to sit down among a group of intolerant discussants might have done so because they had not fully internalized the Dutch cultural value of tolerance. By this reasoning, tolerance may have mattered only for participants who had chosen to distance themselves from the intolerant group, so that only these individuals could use tolerance as a terror management defense. From a sociocultural perspective, this would be remarkable, given the widespread consensus among social scientists that tolerance represents one of the core values in Dutch society (e.g., Moore, 1997; Schama, 1997). Moreover, some earlier research suggests a general tendency among our sample to rely on tolerance as a terror management defense (Koole & Dechesne, 2000). Nevertheless, prior TMT research has pointed to the existence of substantive individual differences in the importance that people place on tolerance (Greenberg et al., 1992). Even though the latter research was conducted in the United States, it cannot be ruled out that similar individual differences were influential in our sample of Dutch university students.

It is notable that, in the tolerant group condition, seating position was presumably unable to differentiate between individuals for whom tolerance was important and those for whom tolerance was unimportant. Consequently, the lack of an interaction among mortality salience, seating position, and group tolerance seems to argue against an individual-differences account. Then again, the lack of such an interaction effect might not be terribly informative, given that the present research may have possessed insufficient power to obtain this three-way interaction. Indeed, a great deal of statistical power would have been needed to test this interaction, given the paucity of participants who sat alone in the high mortality salience conditions. In light of these considerations, it seems important to control more thoroughly for the personal relevance of the particular cultural worldviews that were studied in opposition to participants' affiliation defenses. Experiment 2 was specifically designed for this purpose.

Experiment 2

Experiment 1 shows some strong initial evidence for the emergence of affiliation defenses, but the evidence for worldview validation defenses is relatively weak. As such, the obtained findings are at odds with prior TMT research, which has found consistent evidence for the potency of worldview validation defenses (Greenberg et al., 1997). One conspicuous difference between the present research and prior TMT research lies in the specific worldviews investigated. In Experiment 1, we operationalized worldview defense as the willingness to defend the Dutch cultural value of tolerance. By contrast, most TMT research has demonstrated that people become more narrow minded when they are confronted with existential concerns (see Greenberg et al., 1997). Moreover, experimental evidence that this tendency can be moderated by personal adherence to tolerant values is rather limited (Greenberg et al., 1992). Accordingly, there could be something about tolerance that renders it less suitable as a terror management device. If this is correct, Experiment 1 might have stacked the deck against worldview validation defenses by focusing exclusively on the defense of tolerant worldviews.

The primary goal of Experiment 2 is to come up with a more potent method of ensuring that participants were highly motivated to defend the worldviews that were being threatened by their group. To accomplish this, we first conducted a pretesting session in which we screened which worldviews were most important to each participant. After this, we adapted our materials and procedures for a follow-up session to participants' idiosyncratic worldviews. Accordingly, each participant's personally most important worldviews were the focus of the actual experiment. We hoped that this paradigm, combined with the seating distance methodology from Experiment 1, would make for a more powerful way of gauging the relative importance of affiliation and worldview validation defenses.

Method

Participants and design. Eighty-eight undergraduate students from the University of Nijmegen (64 women and 24 men; average age = 21) were randomly assigned to a 2 (mortality salience: high vs. low) × 2 (group views: like minded vs. different minded) between-subjects factorial design. Participants received Dfl. 10 (about $4) for their participation.

Procedure and materials. Two weeks prior to the experiment, participants were recruited for a pretesting session. The researchers explained to the participants that the pretesting was necessary for the second part of the study and that they would only receive payment if they completed both sessions.

During the pretesting session, participants filled out a Dutch translation of the Study of Values (AVL) Scale (Allport, Vernon, & Lindzey, 1960; see Koole et al., 1999). The AVL Scale is concerned with people's values in six major life domains: aesthetics (appreciation of the fine arts and literature), social (interest in caring for others and human rights), political (interest in power and influence in society), religion (interest in theology and church matters), economics (interest in business and finances), and science (interest in scientific theory and research). The AVL Scale assesses the relative importance of these six values by asking people to choose between options that pit two different values against each other. An example item is "Who contributed the most to the improvement of humanity? a) Sir Isaac Newton, or b) Martin Luther King?" A choice of Option a is scored as a relative preference for the value of science, whereas a choice of Option b is scored as a relative preference for social values. Across the 30 items of the AVL Scale, we tested each of the different value combinations twice. We determined the importance of each value by counting the number of times it was preferred over one of the other values. For each participant, the highest scoring value was taken to be the most important aspect of her or his worldview.

During the experimental session, held about 2 weeks later, participants were once again welcomed by the experimenter (who was unaware of the experimental conditions) and escorted to one of the cubicles. As in Exper-

iment 1, the experimenter explained that a short group discussion was part of the research and pointed out where the discussion was to take place. All the remaining instructions were administered through the computer screen. Participants were informed that they would fill out some questionnaires, followed by a short group discussion. Participants then answered some filler personality questionnaires, followed by the mortality salience manipulation and the PANAS, as in Experiment 1. After this, participants were reminded of the questionnaire that they had filled out 2 weeks before. They were told that this questionnaire had assessed how much six different values meant to them: economy, religion, science, social involvement, arts, and politics. Moreover, participants were informed that the experimenter had determined which one of these values was most important to each participant. Following this, participants in the similar-minded group condition read, "For the upcoming group discussion, you have been assigned to a group of students who value exactly the same category as you." Participants in the different-minded group condition read, "For the upcoming group discussion, you have been assigned to a group of students who place a negative value on your category." Subsequently, all participants were instructed to go to the discussion room and wait for the other group members. As in Experiment 1, we scheduled the experiment such that participants could not run into each other or actually meet in the discussion room. Also as in Experiment 1, the discussion room was furnished with a table with a big-armed chair on the far end, a single chair on one side, and three clustered chairs on the other side. Participants' seating preferences were again covertly scored by the experimenter.

While the participants were waiting for the other group members, they filled out a number of questionnaires that were constructed to assess worldview defense. In these questionnaires, participants were asked to answer some questions regarding two brief essays. One of these two essays always argued in favor of a particular value that was taken from the AVL Scale. Six different versions of this essay were used, one corresponding to each value of the AVL Scale. For instance, the proscience essay read as follows:

> Many people seem to underestimate the importance of science. In my opinion, science forms the basis of human civilization. Indeed, science must be the most fundamental thing that distinguishes between humans and other animal species. For example, if you look at the past, you will see that science has determined the level of development of every civilization. A culture without science is unthinkable and doomed to be lost in oblivion. For me personally, science gives meaning to my life and allows me to develop my personality.

For each of the other five versions of the value-supportive essay, the word *science* was substituted by a different value of the AVL Scale (art, economy, social commitment, ethics, or religion). Each participant received the version of the value-supportive essay that corresponded to her or his most important value, as assessed by her or his AVL Scale scores during the pretesting session. The other essay was the same for all participants and argued against all forms of cultural meaning. Specifically, the value-threatening essay argued,

> Economy, art, politics, science, all of these amount to the same thing. Everything is just religion, and religion is a human illusion that we need in order to escape our anxiety. We simply cannot deal with the fact that we are nothing more than animals. Eating, drinking, and putting babies on this world, that's what it's all about, the rest is foolishness and only leads to misery. People should accept the fact that everything is absolutely meaningless.

Each essay was followed by a series of questions about participants' evaluations of the author. Five of these questions were based on the IJS (Byrne, 1971); the two remaining questions were concerned with participants' global evaluations of the essay (see Greenberg, Pyszczynski, Solomon, et al., 1990): "To what extent does this essay appeal to you?" and "Does this essay affect you in a positive or negative manner?" Both questions were scored on 9-point scales (1 = *not at all*, 9 = *very much*; or 1 = *very negative*, 9 = *very positive*). After participants had evaluated the authors of both essays, the experimenter entered the discussion room and announced that the group discussion was cancelled. Finally, participants were carefully probed for suspicion, debriefed, paid, and dismissed.

Results

Manipulation check. During the debriefing, almost all participants (91.0%) correctly recalled with which other participants (i.e., similar-minded or different-minded) they were to have a group discussion. Eight participants (9.0%) who expressed uncertainty regarding this issue were excluded from the analyses below.

Self-reported affect. A 2 (mortality salience: high vs. low) × 2 (group values: same as vs. different from self) MANOVA was conducted on both subscales of the PANAS. The multivariate tests revealed no significant results. However, a between-subjects ANOVA revealed a significant main effect for group values on positive mood, $F(1, 76) = 4.28$, $p < .05$ ($d = .058$). This effect indicated that participants experienced more positive feelings when they expected to hold a discussion with a similar-minded group than when they expected to hold a discussion with a different-minded group ($M = 3.02$, $SD = 0.65$ vs. $M = 2.71$, $SD = 0.63$ respectively). No significant effects regarding mortality salience were found ($ps > .5$). Moreover, repeating the analyses reported below with mood as a covariate did not alter any of the results.

Seating position. Participants' seating positions were subjected to a 2 (mortality salience: high vs. low) × 2 (group values: same as vs. different from self) × 2 (seating position: single chair vs. clustered chair) logistic regression analysis. This analysis revealed a significant Seating Position × Mortality Salience interaction effect, $\chi^2(1, N = 80) = 4.29$, $p < .04$. As Table 3 shows, most of the participants (70.0%; $n = 28$) in the high mortality salience condition chose to sit in one of the clustered chairs. In contrast, less than half of the participants (48.0%; $n = 19$) in the control condition preferred one of the clustered chairs over the single chair. In addition, the analysis yielded a significant interaction between seating position and the group values manipulation, $\chi^2(1, N = 80) = 5.93$, $p < .02$. The participants who expected to meet with different-minded discussants showed a much greater preference for the clustered chairs (73.0%; $n = 27$) than did the participants who expected to meet with similar-minded discussants (46.0%; $n = 20$). Finally, as in Experiment 1, the three-way interaction among seating position, mortality salience, and group values was nonsignificant ($\chi^2 < 1.00$).

Table 3
Seating Preference as a Function of Mortality Salience (Experiment 2)

	Preferred seat			
	Single chair		Clustered chair	
Mortality salience	*n*	%	*n*	%
Low	21	52	19	48
High	12	30	28	70

Note. $N = 80$.

Worldview defense. In a preliminary factor analysis, the five IJS items and the two essay evaluation questions were found to load on a single factor (loadings $> .60$). Accordingly, we appropriately scored and averaged these items into a single index (Cronbach's $\alpha > .83$). Next, we constructed a composite measure by subtracting mean evaluations of the value-threatening essay from mean evaluations of the value-supporting essay. Higher means on this index indicate greater worldview defense.

As in Experiment 1, we initially included participants' seating position as a correlational factor in the analysis of worldview defense. However, because this analysis revealed no significant effects involving seating position, seating position was removed from the analysis.[3] Accordingly, we proceeded to analyze the worldview defense index by means of a 2 (mortality salience: high vs. low) $\times$ 2 (group values: same as vs. different from self) between-subjects ANOVA. As shown in Table 4, this analysis yielded a Mortality Salience $\times$ Group Values interaction, $F(1, 76) = 5.19$, $p < .03$ ($d = .064$). Specifically, under high mortality salience, participants displayed more worldview defense when they expected to meet a different-minded group than when they expected to meet a similar-minded group ($M = 2.71$, $SD = 1.96$ vs. $M = 1.49$, $SD = 2.12$, respectively). By contrast, in the neutral condition, participants displayed somewhat less worldview defense when they expected to meet a different-minded group than when they expected to meet a similar-minded group ($M = 1.68$, $SD = 1.82$ vs. $M = 2.60$, $SD = 2.35$, respectively). Separate tests revealed that the effect of group values was marginally significant under high mortality salience, $F(1, 38) = 3.51$, $p = .07$ ($d = .085$), but nonsignificant in the control condition, $F(1, 38) = 1.38$, $p > .16$ ($d = .046$). Consequently, the interaction was mainly driven by the effect of group values in the high mortality salience condition.

Discussion

Given the rather weak emergence of worldview validation defenses in Experiment 1, in Experiment 2 we made a concentrated effort to ensure participants' motivation to defend their cultural worldviews. Specifically, participants were given the choice to affiliate or not with a group that either validated or threatened a major life value that the participants had rated as being uniquely important to them. In spite of these precautions, the effects of mortality salience on affiliation were again unqualified by the values that were supported by the group. Mortality salience simply led to a greater preference to sit down in the group, regardless of whether the group supported participants' personal values. Therefore, Experiment 2 provides a further indication that affiliation defenses may take precedence over worldview validation defenses in coping with existential threat.

Table 4
Proworldview Bias as a Function of Mortality Salience and Group Values (Experiment 2)

	In-group view	
Mortality salience	Different minded	Similar minded
Low		
M	1.68	2.60
SD	1.82	2.35
High		
M	2.71	1.49
SD	1.96	2.12

Note. $N = 80$.

It is notable that participants did show evidence of being systematically affected by the group values manipulation. First, participants who expected to meet with a different-minded group reported being in a less favorable mood than did participants who expected to meet with a similar-minded group. Second, participants who expected to meet with a different-minded group showed a greater preference for sitting down in the group than did participants who expected to meet a similar-minded group. It is conceivable that these participants sought to avoid a direct confrontation with a different-minded group (which, we presume, was experienced as more threatening) by choosing to sit down among this group. Conversely, participants may have felt more at ease by the prospect of interacting with a similar-minded group and were therefore more comfortable with the notion of sitting alone. Consistent with the latter interpretation, mortality salience elicited more worldview defense on our paper-and-pencil measure in the different-minded group condition than in the similar-minded group condition. It is conceivable that the prospect of being in a similar-minded group served to alleviate some of the participants' existential concerns and thereby rendered further worldview defense unnecessary. Regardless of which interpretation is more accurate, both interpretations suggest that our manipulation of group values was powerful enough to elicit significant changes in participants' seating behavior. Moreover, the obtained findings confirm the validity of the seating paradigm as a sensitive measure of affiliation defenses.

It is interesting that the results on our paper-and-pencil measure of worldview defense were not qualified by participants' self-chosen seating position, as they had been in Experiment 1. The worldview threat manipulation might have had more impact in Experiment 2, so that affiliation defenses were less able to substitute for worldview validation defenses. Alternatively, our design might have succeeded in ruling out the influence of individual differences in the importance of the worldviews that were being threatened. Methodologically, both of these interpretations imply that our efforts to provide a more powerful operationalization of worldview defense were at least somewhat successful. From a theoretical point of view, the findings of Experiment 2 are consistent with a *functional dissociation* between affiliation and worldview validation defenses, as both defenses appeared to operate simultaneously without canceling each other out. Although this possibility seems intriguing, the findings of Experiment 2 still seem open to alternative explanation. Experiment 3 was carried out to resolve some remaining ambiguities.

Experiment 3

If participants were willing to defend their own worldviews even when they chose to sit within a worldview-threatening group,

[3] When seating position was included as a factor in the ANOVA, this analysis yielded a Mortality Salience $\times$ Group Values interaction, $F(1, 72) = 5.19$, $p < .0151$ ($d = .086$). Thus, the statistical reliability of our findings only became stronger when seating position was taken into account.

then what does participants' seating preference tell us about the relative strength of affiliation and worldview validation defenses? As we have argued before, it seems plausible that participants' seating preference was driven by unconscious affiliation mechanisms that operated somewhat independently of worldview validation defenses. However, it could also be that participants chose to sit within the worldview-threatening group because they wanted to persuade this group of skeptics of the correctness of their own beliefs. From the latter perspective, participants' affiliations with worldview-threatening groups could be reinterpreted as a more vigorous pursuit of worldview validation concerns or a kind of defensive zeal (I. McGregor, Zanna, Holmes & Spencer, 2001). If this were indeed the case, our findings in Experiments 1 and 2 would once again be squarely in support of the primacy of worldview validation, as TMT has advocated.

To clarify these alternative interpretations, we designed a final experiment that provides an even more explicit confrontation between affiliation and worldview validation defenses. Specifically, we presented participants literally with the dilemma of choosing between either sitting alone and defending their own worldviews or sitting in the group and attacking their own worldviews. If, consistent with TMT, participants' desire to sit within the group is motivated by concerns with worldview validation, then mortality salience should produce in participants a greater preference for defending their own worldviews, even if this means sitting alone. Alternatively, if participants' seating preference is motivated by affiliation strivings, then mortality salience should yield a greater preference for sitting in the group, even when this means that participants have to turn their back on their own worldviews.

Method

Participants and design. Sixty undergraduate students from the Free University Amsterdam (42 women and 18 men; average age = 22) were randomly assigned to the high or low mortality salience conditions. Participants received Dfl. 7.5 (about $3) for their participation.

Procedure and materials. On arrival in the laboratory, participants were greeted by an experimenter (who was unaware of the experimental conditions) and led to separate cubicles, each containing an Apple Macintosh computer. The remaining instructions were administered through the computer screen. It was first explained that the research consisted of a number of separate studies. Participants then moved on to the first study, which was similar to the first part of Experiments 1 and 2. Participants answered some filler personality questionnaires, followed by the mortality salience manipulation and the PANAS.

Participants continued with the second study, which was described as an investigation of discussion methods. Supposedly as part of this investigation, they would partake in a group discussion with a minimum of three and a maximum of eight discussants. This group discussion was to take place in a separate discussion room at the end of the session. During the group discussion, each discussant would be requested to defend a worldview that was either congruent or incongruent with her or his personal worldviews. Furthermore, it was explained that the researchers were interested in studying the influence of the number of discussants and their seating positions. Accordingly, the computer would randomly determine the number of discussants for the group discussion, the arrangements of the seats, and which worldviews have to be defended for each of the different seats. As a result of this, when participants chose a particular seat, they would be required to defend a particular opinion that was either congruent or incongruent with their own worldviews. To reduce self-presentation concerns, we stressed that the researchers were not interested in participants' seating decisions or their worldviews but rather in studying how well the discussants would listen to the arguments given by the different group members. To familiarize participants with the procedures, we gave them a few examples.

For each example, the computer screen showed a two-dimensional diagram of a rectangular table and chairs as viewed from above. Each diagram was presented with two options that required participants to defend an opinion that was either at odds or in line with their worldview. In Example 1, the diagram depicted three chairs that were placed at one long side of the table and that were labeled from *1* to *3*, one chair that was placed at the other long side of the table and that was labeled *4*, and one chair that was placed at the short side of the table and that was labeled *5*. Option 1 was, "You can defend an opinion in line with your own worldview in: chair 2, chair 3, chair 5." Thus if participants chose Option 1, they would be required to defend an opinion in line with their own worldview. Option 2 was, "You can defend an opinion that is at odds with your own worldview in: chair 1, and chair 4." Thus, Option 2 required participants to defend an opinion that was at odds with their own worldview. Therefore, both options of Example 1 allowed participants to sit next to the other group members. In Example 2, the diagram depicted three chairs that were placed in a cluster on one of the short ends of the table and that were labeled *1* to *3*, and one chair that was placed on the opposite side of the table and that was labeled *4*. Option 1 was, "You can defend an opinion in line with your own worldview in: chair 1, chair 2, chair 3." Thus, Option 1 required participants to defend an opinion in line with their own worldview and sit next to the other participants. Option 2 was, "You can defend an opinion that is at odds with your own worldview in: chair 4." So, by contrast, Option 2 required participants to defend an opinion that was at odds with their own worldview and to sit alone. It should be noted that for both example presentations, sitting in the group could be combined with defending one's own worldviews. The example presentations thus avoided any conflict between affiliation and worldview validation.

Following the two example presentations, participants were told that the computer was about to make contact with the server to generate the actual seating arrangement. An hourglass appeared on the screen for 7 s, after which the final table diagram was displayed. This diagram depicted three clustered chairs on one long side of the table, labeled *1* to *3*, and a single chair on the other long side of the table, labeled *4*. As in the example presentations, participants were able to choose between two options. Option 1 was, "You can defend an opinion in line with your own worldview in: chair 4." Thus, Option 1 required participants to defend an opinion that was in line with their own worldviews and to sit alone (the single chair). Option 2 was, "You can defend an opinion that is at odds with your own worldview in: chair 1, chair 2, chair 3." As opposed to Option 1, Option 2 required participants to defend an opinion that was at odds with their own worldviews and sit among others (one of the clustered chairs). Thus, this decision involved the critical dilemma between affiliation and worldview validation. As before, participants indicated their decision by typing their response into the computer. After stating their preferred seating position, participants moved on to an unrelated investigation. Finally, the participants were probed for suspicion, extensively debriefed, paid, and dismissed.

Results

Manipulation check. During the debriefing, 96.6% of the participants indicated no suspicions regarding the goals or content of the experiment. The data from 2 participants (1 in each experimental condition) were removed from the data set because these participants had indicated suspicion about the experimental procedures during the debriefing

Self-reported affect. A one-way (mortality salience: high vs. low) ANOVA was conducted on the two subscales of the PANAS.

As in Experiment 1, this analysis revealed no significant results (both *p*s $> .7$).

Nonbinding seating decisions. Although participants' decisions during the example items were explicitly presented as nonbinding, they might still be revealing of participants' readiness to defend their own worldviews. Indeed, prior TMT research suggests that worldview validation defenses may even emerge for activities that represent no more than a symbolic value to the actors (Greenberg et al., 1995).

Recall that both seating alternatives in Example 1 offered the prospect of being seated next to some of the other discussants. Thus, choosing between the two alternatives primarily involved a decision between a seating position that required participants to defend their own worldviews versus a seating position that required participants to attack their own worldviews. Across the experimental conditions, a majority of the participants (74.0%) indicated a preference for the seating alternative that allowed them to defend their own worldviews. Inspection of the frequencies of participants' decisions indicated that the preference for the worldview-congruent seating alternative was somewhat more pronounced in the high mortality salience condition relative to the low mortality salience condition (83.0% vs. 66.0%, respectively). However, a 2 (mortality salience: high vs. low) $\times$ 2 (seating alternative: worldview congruent vs. worldview incongruent) logistic regression analysis failed to show a significant Mortality Salience $\times$ Seating Alternative effect, $\chi^2(1, N = 58) = 2.28$, $p < .15$. Possibly, this nonsignificant result was due to a ceiling effect, given that a majority of the participants in the low mortality salience condition already showed a preference for the worldview-congruent alternative.

Recall that Example 2 consisted of a choice between a seating position that offered the opportunity for both worldview validation and affiliation versus a seating position that offered the opportunity for neither worldview validation or affiliation. Across both experimental conditions, a majority of the participants (79.0%) indicated a preference for the seating alternative that required them to sit in the group and defend their own worldviews. Inspection of the frequencies of participants' decisions indicated that the preference for the worldview-congruent seating alternative was about equal in the high mortality salience condition relative to the low mortality salience condition (83.0% vs. 76.0%, respectively). A 2 (mortality salience: high vs. low) $\times$ 2 (decision alternative: worldview congruent vs. worldview incongruent) logistic regression analysis failed to show a significant Mortality Salience $\times$ Decision Alternative effect, $\chi^2(1, N = 58) = 0.42$, $p < .52$. As before, this nonsignificant result could well have been due to a ceiling effect, given that a majority of the participants in the low mortality salience condition already showed a preference for the worldview-congruent alternative that involved sitting in the group.

Actual seating decisions. In making their actual, binding seating decisions, participants had to choose between (a) sitting alone and defending an opinion in line with their own worldviews and (b) sitting in the group and defending an opinion that was at odds with their own worldviews. We subjected participants' decisions to a 2 (mortality salience: high vs. low) $\times$ 2 (seating alternative: worldview incongruent/group chair vs. worldview congruent/single chair) logistic regression analysis. As shown in Table 5, this analysis showed a significant interaction effect between mortality salience and seating alternative, $\chi^2(1, N = 58) = 4.52$, $p < .04$.

Table 5
Seating Preference as a Function of Mortality Salience (Experiment 3)

	Preferred seat			
	Worldview congruent/single chair		Worldview incongruent/group chair	
Mortality salience	*n*	%	*n*	%
Low	22	76	7	24
High	14	48	15	52

Note. $N = 58$.

Specifically, preference for the worldview-congruent/single-chair alternative was found to be weaker under high versus low mortality salience (48.0% vs. 76.0%, respectively).

Another way of describing the results is to examine the number of individuals who shifted their opinions between the nonbinding seating decision in Sample Arrangement 2 (which involved no conflict between affiliation and worldview validation) and the actual, binding seating decision (which did involve a conflict between affiliation and worldview validation). As might be expected, the only shifts that were observed occurred from the worldview-congruent seating alternative to the worldview-incongruent seating alternative. Accordingly, we subjected participants' shift intentions to a 2 (mortality salience: high vs. low) $\times$ 2 (options: shifters vs. nonshifters) logistic regression analysis. This analysis revealed that heightened mortality salience caused more participants to shift from the worldview-congruent seat toward the worldview-incongruent seat, $\chi^2(1, N = 58) = 5.88$, $p = .015$ (54.0% vs. 19.0%, respectively).

Discussion

In Experiment 3, we followed a somewhat different methodological strategy in studying the interplay between affiliation and worldview validation defenses. In our previous two experiments, our approach had been rather subtle, focusing on participants' spontaneous tendencies to affiliate with proximal social groups. By contrast, the approach of Experiment 3 is much more blatant. Indeed, we explicitly presented participants with the dilemma of choosing between sitting alone and defending their own worldviews or sitting in the group and attacking their own worldviews. In spite of this difference in approach, the findings of Experiment 3 are highly consistent with our previous observations. More specifically, Experiment 3 finds once more that mortality salience caused a greater preference for sitting in the group, even when sitting in the group required participants to attack their own worldviews. It thus appears that mortality salience aroused such strong concerns with affiliation that our participants, at least in the experimental context, were willing to explicitly turn against their own worldviews to remain affiliated with the group.

As in the previous three experiments, there is reason to believe that the results of Experiment 3 are not due to a simple lack of involvement among our participants with their own worldviews. First, similar to Experiment 2, the procedures were focused on participants' personal worldviews, thereby ensuring the personal

relevance of these worldviews. Second, the analysis of participants' nonbinding seating decisions revealed that participants strongly preferred to defend their own worldviews, provided that doing so did not interfere with their affiliation defenses. Third, the nonbinding seating decisions presumably served to prime participants' own worldviews, thereby rendering these worldviews highly accessible (cf. Greenberg et al., 1992). In spite of this, heightened mortality salience caused a greater number of participants to shift toward a worldview-incongruent seating position that allowed them to remain affiliated with the group. Taken together, the results of Experiment 3 suggest that affiliation defenses are indeed capable of overriding worldview validation defenses, even when the worldviews in question are personally relevant and highly accessible.

Attentive readers may have noticed that in Experiment 3, 52.0% of the participants chose to sit in the group chair, whereas in Experiments 1 and 2, 80.0% and 70.0%, respectively, chose to do so. It thus appears that the rate of sitting in the group was somewhat lower in Experiment 3, as compared with the other two seating experiments. It is conceivable that this difference was due to participants' reluctance to attack their own worldviews, which was explicitly stated as a consequence of choosing to sit in the group in Experiment 3. On the other hand, there were a number of procedural differences between Experiment 3 and Experiments 1 and 2. For instance, the decision to sit in the group was much more explicit in Experiment 3. Assuming that affiliation defenses are highly automatic and even, to a large extent, subsymbolic, participants' explicit seating decisions might have been less sensitive to the operation of affiliation defenses. A second procedural difference was that participants in Experiment 3 had been asked to state their seating preferences during a few practice decisions that were nonbinding. Almost all participants preferred the seating option that allowed them to defend their own worldviews, which is not especially surprising, given that these decisions involved no conflict between worldview validation and affiliation. Although a substantial number of participants shifted between these practice decisions and their actual seating decisions, these practice decisions might have created a motivation among our participants to be consistent in their decision making and, thus, to choose the seat that allowed them to defend their own worldviews. In light of these various procedural differences between Experiment 3 and Experiments 1 and 2, more research is needed to explain why a lower percentage of participants chose to sit within the group in Experiment 3.

General Discussion

The present research highlights the importance of affiliation defenses in the psychological confrontation with death. Across three different experiments, we found that mortality salience led to increased affiliation strivings, as indicated by a greater behavioral tendency to sit next to fellow group members (Experiments 1 and 2) and a more pronounced preference for sitting within the group as opposed to sitting alone (Experiments 1–3). The tendency to affiliate with other group members thus emerged as a highly robust reaction toward death-related thoughts. Mortality salience even led to increased affiliation when group members had previously threatened participants' worldviews (Experiments 1 and 2) or when affiliation with the group forced participants to attack their own worldviews (Experiment 3). Therefore, it appears that affiliation defenses were powerful enough to override at least some of participants' concerns with worldview validation. Because of the theoretical importance of the interplay between affiliation and worldview validation defenses, we consider this issue more closely in the next few paragraphs.

The Interplay Between Affiliation and Worldview Validation Defenses

In the present research, we followed a two-fold strategy in addressing the interplay between affiliation and worldview validation defenses. First, we manipulated the extent to which group affiliation was threatening to participants' worldviews and observed how this affected participants' tendency to affiliate with the group. Because this strategy allows for an examination of affiliation and worldview validation defenses on a single dependent variable, this seems the most direct way to examine the interplay of both defense mechanisms. Remarkably, the results showed that the increase in affiliation due to mortality salience was not moderated by the degree to which affiliation with the group was at odds with participants' worldviews. This lack of moderation effects did not appear to be due to the weakness of our manipulations of worldview threat, because we used either worldviews that were central to the culture of our participants (Experiment 1) or worldviews that were ideographically relevant to our participants individually (Experiments 2 and 3). Moreover, our procedures rendered participants' worldviews highly accessible throughout all three experiments. Attesting further to the strength of our worldview manipulations, some of our other findings clearly show that our participants were prepared to defend their worldviews, although not in an unqualified manner. For instance, participants displayed a proworldview bias on our essay measure in Experiments 1 and 2. In a similar vein, participants preferred to defend their own worldviews in Experiment 3 in their nonbinding seating decisions. Thus, our participants seemed both willing and able to defend their worldviews, as long as doing so did not interfere with their affiliation strivings.

Our second strategy for examining the interplay between affiliation and worldview validation defenses consisted of administering conventional essay measures of worldview validation (Greenberg, Pyszczynski, Solomon, et al., 1990) after participants had been provided with an opportunity for affiliation. To control for the earlier operation of affiliation defenses, our analyses of the essay measures took participants' prior affiliation status (i.e., their self-chosen seating position) into account. Overall, this strategy is inferentially weaker than the first strategy, because it allows for less experimental control over the extent to which participants had already buffered themselves by affiliating with the group. Still, the second strategy might provide some additional insight into the interplay between affiliation and worldview validation defenses. Experiment 1 did find increased worldview validation under heightened mortality salience, but only among participants who had not affiliated with the group (i.e., those who had chosen to sit down alone). Finally, the essay measure in Experiment 2 again showed increased worldview validation under heightened mortality salience, but this time the effect was unqualified by participants' affiliation status.

Taken together, our findings reveal two broad patterns in the interplay between affiliation and worldview validation defenses. First, affiliation defenses seem capable of overriding worldview validation defenses, especially when the dependent measure directly assesses affiliation behavior. Indeed, across all three experiments, two different measures of affiliation behavior (i.e., behavioral seating position and self-stated seating preference) revealed evidence for increased affiliation under high mortality salience, regardless of whether affiliation supported participants' own worldviews. By contrast, the essay measures of worldview validation appeared to be somewhat less affected by affiliation defenses, especially in Experiment 1. It is conceivable that the essay measures were less sensitive to the emergence of affiliation defenses, given that these measures were less direct and more laden with symbolic meanings than our affiliation measures.

With regard to the latter findings, there was an interesting discrepancy between the findings in Experiments 1 and 2. In Experiment 1, in which the essay measure was concerned with culturally valued worldviews, worldview validation defenses were moderated by participants' affiliation status. By contrast, in Experiment 2, the essay measure was concerned with participants' ideographically relevant worldviews, and worldview validation defenses were not moderated by participants' affiliation status. Accordingly, affiliation defenses might be able to override or compensate for worldview validation defenses when the worldviews in question are valued by the culture at large. When such culturally valued worldviews are under attack, people might be able to trivialize or downplay the importance of these worldviews (cf. Simon, Greenberg, & Brehm, 1995). By contrast, when the group threatens personally relevant worldviews, people might be less able to disregard the worldview threat, given that they are already personally invested in these worldviews. Because Experiments 1 and 2 differ on several dimensions besides the personal relevance of the worldviews that were threatened, it is possible that other factors accounted for our results. Therefore, more systematic research is needed to test whether personal relevance indeed moderates the extent to which affiliation defenses are able to compensate for or override worldview validation defenses.

The Case for Multiple Terror Management Defenses

Even though our empirical analysis of the interplay between affiliation and worldview validation defenses is only preliminary, we still offer some speculations about the broader theoretical implications of our findings. In a recent article, Pyszczynski et al. (1999) distinguished between two distinct terror management mechanisms. The first type of mechanism consists of largely conscious, pseudological denials of one's vulnerability and the relevance of death concerns (e.g., "I am still young and healthy, it will take a while before I die"). The second type of mechanism is largely unconscious and consists of the defense of broader symbolic meaning structures, such as cultural worldviews, that, on the surface, bear no logical or rational relationship to the problem of death but are only distally related to death transcendence.

How do affiliation defenses fit into this conceptual scheme? We begin by noting that affiliation does not represent a (pseudo) rational way of denying of one's own mortality. Moreover, none of our participants reported during the debriefing that they had consciously attempted to affiliate with their group to escape from their existential concerns. Thus, affiliation defenses are similar to TMT's conceptualization of distal defense, in the sense of being mediated by implicit, irrational processes. Nevertheless, our findings also indicate that affiliation defenses do not necessarily operate in the service of upholding cultural–symbolic meanings and may even override the need to defend such meanings. As such, affiliation defenses only partially fit with TMT's notion of distal defenses (Pyszczynski et al., 1999). Instead, the anxiety-buffering role of affiliation may operate, to a large extent, through subcognitive mechanisms that are independent of socially shared symbolic meanings. Consistent with this, recent psychobiological work (e.g., Carter et al., 1997; Taylor et al., 2000; Uchino et al., 1996) suggests that affiliation is capable of reducing anxiety through neuroendocrine processes. Affiliation defenses are thus qualitatively different from both rational and distal defenses, as a form of defense that relies largely on innate, hard-wired defense systems that operate in humans as well as other animal species.

The current distinction between symbolic and subsymbolic defenses is much in line with personality systems interactions (PSI) theory, an integrative personality theory that has recently been formulated by Kuhl (2001). PSI theory distinguishes between two forms of implicit functioning, extension memory and intuitive behavior control. Extension memory is a cognitive system that consists of extended networks of self-representations and meaning structures. As such, the functional profile of extension memory makes it likely that this system mediates worldview validation defenses of the kind that are proposed by TMT (Pyszczynski et al., 1999). By contrast, intuitive behavior control is a cognitive system that mediates automatic, often innately prepared forms of self-regulation. As such, the functional profile of intuitive behavior control fits with the highly automatic, subsymbolic ways affiliation defenses appear to operate. According to PSI theory, the distinction between extension memory and intuitive behavior control has a number of profound functional implications. For instance, the activation of extension memory is somewhat slower than that of intuitive behavior control (even though both systems are implicit and automatic), because the activation of extended cognitive networks is likely to be more time-consuming than the activation of simple behavior programs. In addition, extension memory is more likely to vary among individuals, because extension memory develops largely from experience, whereas large parts of intuitive behavior control are innate. Applied to the current context, we might speculate that worldview validation defenses are probably somewhat slower to emerge and more prone to individual differences, compared with affiliation defenses. Although the testing of these hypotheses awaits future research, this type of theorizing seems likely to add significantly to our understanding of terror management defenses.

Although we have hitherto stressed the distinction between worldview validation and affiliation defenses, we by no means want to argue that the two kinds of defenses never cooperate. Theoretically, Kuhl (2001) has argued that extension memory and intuitive behavior control (i.e., the cognitive systems that may underlie worldview validation and affiliation defenses) are functionally compatible and often highly interconnected. In line with this, most cultures stress the importance of interpersonal relationships, such as friendship and romantic love (Baumeister & Leary, 1995; Taubman Ben-Ari et al., 2002; Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000). Moreover, from a developmental

perspective, symbolic defenses may evolve from relatively primitive associations between valued behavior and safety and protection that are provided by the primary caregivers (Pyszczynski et al., 1999). As the child's cognitive capacities continue to develop, symbolic defenses may gradually acquire a functional independence from the protection that is offered by the primary caregivers. For instance, the comfort that is derived from a father's physical presence might be complemented by the comfort of having a more abstract father figure who resides in heaven and watches over one when one is alone. Although this account of the interrelationship between worldview validation and affiliation defenses is admittedly crude and speculative, it seems clear that both types of defenses are not only distinct but also mutually related.

Limitations and Future Perspectives

Before closing, we mention some limitations of the current research as well as some challenges for future research. First, we emphasize that the present studies were explicitly aimed at separating the anxiety-buffering influence of subsymbolic affiliation behaviors from the anxiety-buffering influence of intrinsically symbolic behaviors such as worldview validation. Although we believe that the distinction between these two defenses is useful on a theoretical level, it is probably most common for affiliation and worldview validation defenses to operate in tandem. In real life situations, people's closest in-group members are likely to share their attitudes, ideologies, and religious beliefs. Consequently, affiliation and worldview validation defenses probably work together most of the time to shield people's minds from existential concerns. Even so, people may sometimes be confronted with the pressing dilemma of choosing between their personal beliefs and affiliation with the group. For instance, dissidents of all persuasions and nationalities have faced the decision between remaining safe within the silent majority or standing up for their beliefs and facing the potential wrath of the authorities. Closer to home, dissenting communicators often feel pressured to shift their attitudes toward the position of the audience (Lerner & Tetlock, 1999), and individuals holding egalitarian beliefs are made to feel like narrow-minded prudes when they speak out against a sexist joke (Ford, 2000). Studying the range of situations in which affiliation and worldview validation defenses may be in conflict or mutually reinforce each other seems an important agenda for future research.

Second, the present research studies affiliation as a unitary form of defense. Although this strategy is convenient for the present purposes, it might be possible to analyze affiliation defenses into further component processes. For instance, it might be possible to distinguish approach- and avoidance-oriented affiliation defenses. Approach affiliation defenses may be directed toward obtaining the positive social outcomes that are associated with being part of the group, whereas avoidance affiliation defenses may be focused on avoiding the negative social outcomes that are associated with being alone (Frank & Brandstaetter, 2002; see also Higgins, 1998). The present paradigm did not allow us to discriminate between approach- and avoidance-oriented affiliation defenses, but recent research in our laboratory suggests that it may be useful to make this distinction (Wisman & Koole, 2001). Third, the present experiments only compare mortality salience conditions with neutral control conditions. As such, it remains possible that the observed affiliation defenses qualities are not unique to terror management processes. Indeed, past affiliation research suggests that this form of defensive occurs under a wide variety of anxiety-provoking events (Schachter, 1959; Taylor et al., 2000). As such, it may well be that affiliation defenses are triggered by a wider variety of threats than worldview validation defenses, which have been shown to occur predominantly in response to death-related threats (Greenberg et al., 1997). Examining the specificity of the present findings to terror management processes thus constitutes an important issue for future research.

Concluding Remarks

The psychological confrontation with death is undoubtedly one of the most terrifying problems that each individual must face. Because of the sheer magnitude of this problem, people need to rely on psychological defenses to shield themselves from existential anxiety. In the present research, we have shown that affiliation with other group members qualifies as an especially powerful terror management defense. When people are reminded of their existential concerns, it suddenly becomes especially important to them to be close to other group members. It is notable that this affiliation defense even emerges when other group members threaten one's own worldviews. When plagued by existential concerns, people simply want to hide in the crowd, no matter what ideas this crowd has espoused.

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